

## Connection for wall elements

### BACKGROUND OF THE INVENTION

The invention relates to the field of connection assemblies for wall elements.

- 5 From Belgian patent specification 1.007.949 a connection assembly for a corner in a wall of for instance a fence or garden or summer house is known, which comprises a coupling profile with which pairs of wall units can be connected one to the other, the coupling profile being situated at the outside of the wall units. The coupling member is a turned wooden strip, the  
10 longitudinal edges of which having edges standing away inwardly, defining a recess at the inside of the strip. The wall units to be connected have recesses at their respective ends which recesses fit over the upright longitudinal edges and the respective ends are provided with inclined edges which in the assembled situation of the connection assembly abut each other  
15 in the recess.

It is an object of the invention to provide an improved connection.

- It is a further object of the invention to provide a connection for wall  
20 elements that is versatile.

### SUMMARY OF THE INVENTION

- The invention to that end provides an assembly of a coupling profile, a number of pairs of wall elements to be connected to each other and at least  
25 one cover profile for the coupling profile, in which the wall elements to be connected can be coupled in pairs by means of the coupling profile and the

cover profile can be coupled with the coupling profile. Thus a connection is provided in which the coupling profile has a load-bearing function and in which the cover profile has a covering function: a separation of functions is the result. As a result a free choice in material for the cover profile is obtained, and a for instance less strong material can be chosen for it.

In an advantageous manner the cover profile is situated on the other side of the coupling profile than the side of the coupling profile where the wall elements meet. In this way the coupling profile can have a relatively simple form and the connection assembly can have a relatively simple structure. Both sides of the coupling profile can be used.

Covering can take place with a number of cover profiles that connect to each other. Preferably the cover profile extends over the pairs of wall elements in a direction perpendicular to the longitudinal direction of the wall elements. This provides the advantage that in principle one single cover profile suffices for all pairs of wall elements forming one connection. This simplifies the arrangement of the cover profile and provides an elegant design. Moreover the coupling profile is protected against influences of the environment, such as weather conditions or mechanical influences (such as for instance a lawnmower riding against the coupling profile). This improves the durability of the connection.

In a preferred embodiment of the connection the coupling profile is made of a rigid material, preferably of metal. The connection assembly known from Belgian patent specification 1.007.949, and consisting entirely from wood for use in for instance a garden or summer house, has the possible drawback that the (parquet) floor of the garden house pushes the upright walls apart. This effect is increased in larger garden houses. Particularly in larger garden houses the strength is insufficient to counteract this pushing apart. Using a coupling profile from a rigid material, such as metal (for instance aluminium), improves the strength of the connection considerably and reduces,

particularly in the case of larger garden houses, the pushing apart of the wall elements.

5 In an advantageous manner the wall elements are made of wood. In particular for garden houses using any wanted kind of wood for wall elements is desirable.

10 Preferably the cover profile is (also) made of any wanted kind of wood. In this way the look is created of a house that is made entirely of wood, whereas this may (as a result of the cover profile not visibly) be reinforced by means of a coupling profile, of for instance metal. The choice of material for the wall element and cover profile is after all free.

15 Preferably the coupling profile at the cover side forms an angle of  $> 180^\circ$ .

Preferably the coupling profile is straight.

20 In a preferred embodiment the coupling profile is provided with an outermost recess for accommodating the cover profile and with an innermost recess for accommodating the ends of the parts to be connected.

25 Preferably the outermost recess is here limited to either side by two outermost legs, the longitudinal edges of the cover profile being provided with respective recesses to fit over the respective outermost legs, and in that the innermost recess is limited to either side by two innermost legs, the ends of the parts to be connected being provided with respective recesses to fit over the respective innermost legs. The outermost legs and the recesses in the cover profile cooperating with it here form connection means for the cover profile and the coupling profile. The innermost legs and the recesses in  
30 the parts to be connected cooperating with it form connection means for the pairs of parts to be connected and the coupling profile.

Preferably the outermost legs have a squared buckle. The outermost and/or innermost legs can be arranged perpendicularly to the base surface of the outermost recess and the innermost recess, respectively.

- 5 Preferably the assembly further comprises a pair of lower edge members, which lower edge members can be coupled in pairs by means of the coupling profile. The lower edge members increase the strength. The coupling profile has got an extra function here: coupling the lower edge members. The cover profile may possibly also cover the lower edge members.

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- In the assembly with lower edge members, the optional innermost recess is preferably also adapted for accommodating the ends of the lower edge members. The ends of the lower edge members can be provided with respective recesses to fit over the respective innermost legs. The innermost legs and the recesses in the lower edge members cooperating with it form
- 15 connection means for the lower edge members and the coupling profile. Thus a firmer connection is provided in comparison to a connection in which the lower edge members and the coupling profile have not been coupled.

- 20 It is noted that from British patent specification 245.035 a corner connection for wooden houses is known, in which for each two wall panels meeting each other, a coupling element is used. The connection is covered by two cover panels that are attached to the wall panels.

## 25 BRIEF DESCRIPTION OF THE DRAWINGS

An exemplary embodiment of the invention will below be elucidated by way of example on the basis of the figures.

- Figure 1A shows a top view of an exemplary embodiment of the connection assembly according to the invention.
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Figure 1B shows the same top view as figure 1A, however in disassembled

situation of the various parts.

Figure 2 shows a similar connection assembly as shown in the figures 1A and 1B, however with a larger angle of the coupling profile on the side of the wall elements.

Figures 3A and 3B show in perspective view an exemplary embodiment of a connection assembly according to the invention having lower edge members.

Figure 1A and 1B show in top view a connection assembly 1 which comprises: a pair of wall elements 10a,b connected to each other, a continuous coupling profile 30 and a cover profile 40.

#### DETAILED DESCRIPTION OF THE DRAWINGS

The coupling profile 30 comprises an innermost recess 31 having innermost legs 32a and 32b, as well as an outermost recess 33 having outermost legs 34a and 34b. The outermost legs 34a, 34b have a respective squared buckle 35a, 35b. The innermost recess 31 comprises an L-shaped base surface 36 and the outermost recess 33 comprises an L-shaped base surface 37. In this exemplary embodiment the coupling profile 30 has been manufactured as one unity from extrusion aluminium. Alternatively the innermost legs 32a, 32b as well as the outermost legs 34a, 34b can be welded to the coupling profile 30. Alternatively one of the innermost legs 32a, 32b or outermost legs 34a, 34b can also be a turned edge of the coupling profile 30.

The pairs of wall elements 10a, 10b connected to each other have respective ends 11a, 11b with respective recesses 12a, 12b arranged in there. The innermost legs 32a, 32b fit into the recesses 12a, 12b. The ends 11a, 11b have respective head surfaces 13a, 13b which abut each other in the connection assembly 1. The recesses 12a, 12b, the innermost legs 32a, 32b and the inclined head surfaces 13a, 13b form connection means to connect the wall elements 10a, 10b and the coupling profile 30 one to the other. In

- general the angles  $\beta$  and  $\gamma$  will be of equal size here, and equal to  $\alpha/2$ , in which the angles  $\beta$  and  $\gamma$  are the angles with which the respective head surfaces 13, 13b have been bevelled as indicated in figure 1B, and in which the angle  $\alpha$  is the angle forming the coupling profile 30 on the side of the wall elements 10a, 10b to be connected. The angles  $\beta$  and  $\gamma$  are the respective angles the inclined head surfaces 13a, 13b make with the respective surfaces that are perpendicular to the longitudinal direction of the respective wall elements 10a, 10b.
- 10 The cover profile 40 has ends 41a, 41b, respectively, in which recesses 42a, 42b have been made, respectively, which fit over the outermost legs 34a, 34b. Together the outermost legs 34a, 34b and the recesses 42a, 42b form the connection means for the cover profile 40 and the coupling profile 30. It is noted that the cover profile 40 may alternatively be made from two parts:
- 15 an innermost profile 43 and an outermost profile 44 which for instance are connected by means of nails or by means of gluing. The separation between such parts is indicated by a dashed line in figure 1A and 1B. A structure from two parts 43, 44 may be preferred from a production technical point of view. Moreover yet a (further) division of the cover profile 40 according to the
- 20 plane of symmetry of the cover profile 40 can be provided. Said division is indicated by the inclined dashed line. When the cover profile 40 has been divided according to the plane of symmetry, both composing parts can be arranged in the coupling profile 30 without being connected one to the other. Both composing parts are then connected one to the other by means of the
- 25 cooperating inclined head surfaces and the outermost legs 34a, 34b. It is noted that the cover profile 40 can both be parted in an innermost profile 43 and an outermost profile 44, as well as according to the plane of symmetry. The cover profile 40 then comprises four separate parts.
- 30 Figure 2 shows a similar connection assembly 1 as shown in figures 1A and 1B, however with a larger angle  $\alpha'$  of the coupling profile 30 on the side of the connected wall elements 10a, 10b. Accordingly the angles of the

beveling of the head surface 13a, 13b:  $\beta'$  and  $\gamma'$  are smaller. In case the angle  $\alpha'$  of the connection assembly would be  $180^\circ$ , the angles  $\beta'$  and  $\gamma'$  have been reduced to 0.

- 5     Figures 3A and 3B show a perspective view of an exemplary embodiment of a connection assembly 1 according to the invention having two pairs of wooden wall elements 10a, 10b, 20a, 20b, an aluminium coupling profile 30, a wooden cover profile 40 and wooden lower edge beams 50a, 50b.
- 10    For reasons of clarity the coupling profile 30 is shown over a limited length only, only two pairs of wall elements 10a, 10b, 20a, 20b are shown and the cover profile 40 does not cover the coupling profile 30 over its entire length.

- As has been described with figures 1A and 1B, the pairs of wall elements
- 15    10a, 10b 20a, 20b are connected to the coupling profile 30. Also the lower edge members 50a, 50b are connected in a similar way to the coupling profile 30. Moreover the pairs of wall elements 10a, 10b and 20a, 20b are also connected one to the other by means of upright edges 14a, 14b and recesses 25a, 25b cooperating with them, and the lowermost pair of wall
- 20    elements 10a, 10b is connected to lower edge members 50a, 50b by means of cooperating recesses 15a, 15b, respectively, and edges 55a, 55b cooperating with them.

- Of course wall elements could be arranged over the entire length of the
- 25    coupling profile 30 and the cover profile 40 could cover the coupling profile 30 entirely. Moreover the cover profile 40 may extend (almost entirely) over the height of the lower edge members 50a, 50b.

- The coupling profile 30 and the cover profile 40 may, prior to making the
- 30    connection assembly 1, be connected to each other by sliding the coupling profile 30 and the cover profile 40 over each other in longitudinal direction. Alternatively they can also be connected to each other after the lower edge

members 50a, 50b, the pairs of wall elements 10a, 10b, 20a, 20b and the coupling profile 30 have been connected one to the other.

5 The connection assembly according to the invention can to offer a clamp-fixed connection for both the pairs of wall elements 10a, 10b, 20a, 20b .... as well as the cover profile 40. The cover profile 40 and the pairs of wall elements 10a, 10b, 20a, 20b .... can be made of the same kind of wood because the cover profile 40 has no load-bearing function.